Listing of Claims:

1. (Currently amended) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from [[5]] 15 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula MR_nX_{3-n} ;
wherein M is a Group 13 metal;
each R is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 1 to 3; and
each X is a halogen.

2. (Previously presented) The process of claim 28, wherein the one or more hydrofluorocarbon(s) is represented by the formula: $C_xH_yF_z$ wherein x is an integer from 1 to 40 and y and z are integers of one or more.

3. (Original) The process of claim 2, wherein x is from 1 to 10.

4. (Original) The process of claim 2, wherein x is from 1 to 6.

5. (Original) The process of claim 2, wherein x is from 1 to 3.

6. (Previously presented) The process of claim 28, wherein the one or more hydrofluorocarbon(s) is independently selected from the group consisting of fluoromethane; difluoromethane; trifluoromethane; fluoroethane; 1,1-difluoroethane; 1,2-difluoroethane; 1,1,1-trifluoroethane; 1,1,2-trifluoroethane; 1,1,1,2-tetrafluoroethane; 1,1,2,2-tetrafluoroethane; 1,1,1,2,2-pentafluoroethane; 1-fluoropropane; 2-fluoropropane; 1,1-difluoropropane; 1,2-difluoropropane; 1,3-difluoropropane; 2,2-difluoropropane; 1,1,1-trifluoropropane; 1,1,2-trifluoropropane;

1,1,3-trifluoropropane; 1,2,2-trifluoropropane; 1,2,3-trifluoropropane; 1,1,1,2-tetrafluoropropane; 1,1,1,3-tetrafluoropropane; 1,1,2,2-tetrafluoropropane; 1,1,2,3-tetrafluoropropane; 1,1,3,3-tetrafluoropropane; 1,2,2,3-tetrafluoropropane; 1,1,1,2,2-pentafluoropropane; 1,1,1,2,3-pentafluoropropane; 1,1,1,3,3-pentafluoropropane; 1,1,2,2,3-pentafluoropropane; 1,1,2,3,3-pentafluoropropane; 1,1,1,2,2,3-hexafluoropropane; 1,1,1,2,3,3-hexafluoropropane; 1,1,1,3,3,3-hexafluoropropane; 1,1,1,2,2,3,3-heptafluoropropane; 1,1,1,2,3,3,3-heptafluoropropane; 1-fluorobutane; 2-fluorobutane; 1,1-difluorobutane; 1,2-difluorobutane; 1,3-difluorobutane; 1,4-difluorobutane; 2,2-difluorobutane; 2,3-difluorobutane; 1,1,1-trifluorobutane; 1,1,2-trifluorobutane; 1,1,3-trifluorobutane; 1,1,4-trifluorobutane; 1,2,2-trifluorobutane; 1,2,3-trifluorobutane; 1,3,3-trifluorobutane; 2,2,3-trifluorobutane; 1,1,1,2-tetrafluorobutane; 1,1,1,3-tetrafluorobutane; 1,1,1,4-tetrafluorobutane; 1,1,2,2-tetrafluorobutane; 1,1,2,3-tetrafluorobutane; 1,1,2,4-tetrafluorobutane; 1,1,3,3-tetrafluorobutane; 1,1,3,4-tetrafluorobutane; 1,1,4,4-tetrafluorobutane; 1,2,2,3-tetrafluorobutane; 1,2,2,4-tetrafluorobutane; 1,2,3,3-tetrafluorobutane; 1,2,3,4-tetrafluorobutane; 2,2,3,3-tetrafluorobutane; 1,1,1,2,2-pentafluorobutane; 1,1,1,2,3-pentafluorobutane; 1,1,1,2,4-pentafluorobutane; 1,1,1,3,3-pentafluorobutane; 1,1,1,3,4-pentafluorobutane; 1,1,1,4,4-pentafluorobutane; 1,1,2,2,3-pentafluorobutane; 1,1,2,2,4-pentafluorobutane; 1,1,2,3,3-pentafluorobutane; 1,1,2,4,4-pentafluorobutane; 1,1,3,3,4-pentafluorobutane; 1,2,2,3,3-pentafluorobutane; 1,2,2,3,4-pentafluorobutane; 1,1,1,2,2,3-hexafluorobutane; 1,1,1,2,2,4-hexafluorobutane; 1,1,1,2,3,3-hexafluorobutane, 1,1,1,2,3,4-hexafluorobutane; 1,1,1,2,4,4-hexafluorobutane; 1,1,1,3,3,4-hexafluorobutane; 1,1,1,3,4,4-hexafluorobutane; 1,1,1,4,4,4-hexafluorobutane; 1,1,2,2,3,3-hexafluorobutane; 1,1,2,2,3,4-hexafluorobutane; 1,1,2,2,4,4-hexafluorobutane; 1,1,2,3,3,4-hexafluorobutane; 1,1,2,3,4,4-hexafluorobutane; 1,2,2,3,3,4-hexafluorobutane; 1,1,1,2,2,3,3-heptafluorobutane; 1,1,1,2,2,4,4-heptafluorobutane; 1,1,1,2,2,3,4-heptafluorobutane; 1,1,1,2,3,3,4-heptafluorobutane; 1,1,1,2,3,4,4-heptafluorobutane; 1,1,1,2,4,4,4-heptafluorobutane; 1,1,1,3,3,4,4-heptafluorobutane; 1,1,1,2,2,3,3,4-octafluorobutane; 1,1,1,2,2,3,4,4-octafluorobutane; 1,1,1,2,3,3,4,4-octafluorobutane; 1,1,1,2,2,4,4,4-octafluorobutane; 1,1,1,2,3,4,4,4-octafluorobutane; 1,1,1,2,2,3,3,4,4-nonafluorobutane; 1,1,1,2,2,3,4,4,4-

nonafluorobutane; 1-fluoro-2-methylpropane; 1,1-difluoro-2-methylpropane; 1,3-difluoro-2-methylpropane; 1,1,1-trifluoro-2-methylpropane; 1,1,3-trifluoro-2-methylpropane; 1,3-difluoro-2-(fluoromethyl)propane; 1,1,1,3-tetrafluoro-2-methylpropane; 1,1,3,3-tetrafluoro-2-methylpropane; 1,1,3-trifluoro-2-(fluoromethyl)propane; 1,1,1,3,3-pentafluoro-2-methylpropane; 1,1,3,3-tetrafluoro-2-(fluoromethyl)propane; 1,1,1,3-tetrafluoro-2-(fluoromethyl)propane; fluorocyclobutane; 1,1-difluorocyclobutane; 1,2-difluorocyclobutane; 1,3-difluorocyclobutane; 1,1,2-trifluorocyclobutane; 1,1,3-trifluorocyclobutane; 1,2,3-trifluorocyclobutane; 1,1,2,2-tetrafluorocyclobutane; 1,1,3,3-tetrafluorocyclobutane; 1,1,2,2,3-pentafluorocyclobutane; 1,1,2,3,3-pentafluorocyclobutane; 1,1,2,2,3,3-hexafluorocyclobutane; 1,1,2,2,3,4-hexafluorocyclobutane; 1,1,2,3,3,4-hexafluorocyclobutane; 1,1,2,2,3,3,4-heptafluorocyclobutane; vinyl fluoride; 1,1-difluoroethene; 1,2-difluoroethene; 1,1,2-trifluoroethene; 1-fluoropropene, 1,1-difluoropropene; 1,2-difluoropropene; 1,3-difluoropropene; 2,3-difluoropropene; 3,3-difluoropropene; 1,1,2-trifluoropropene; 1,1,3-trifluoropropene; 1,2,3-trifluoropropene; 1,3,3-trifluoropropene; 2,3,3-trifluoropropene; 3,3,3-trifluoropropene; 1-fluoro-1-butene; 2-fluoro-1-butene; 3-fluoro-1-butene; 4-fluoro-1-butene; 1,1-difluoro-1-butene; 1,2-difluoro-1-butene; 1,3-difluoropropene; 1,4-difluoro-1-butene; 2,3-difluoro-1-butene; 2,4-difluoro-1-butene; 3,3-difluoro-1-butene; 3,4-difluoro-1-butene; 4,4-difluoro-1-butene; 1,1,2-trifluoro-1-butene; 1,1,3-trifluoro-1-butene; 1,1,4-trifluoro-1-butene; 1,2,3-trifluoro-1-butene; 1,2,4-trifluoro-1-butene; 1,3,3-trifluoro-1-butene; 1,3,4-trifluoro-1-butene; 1,4,4-trifluoro-1-butene; 2,3,3-trifluoro-1-butene; 2,3,4-trifluoro-1-butene; 2,4,4-trifluoro-1-butene; 3,3,4-trifluoro-1-butene; 3,4,4-trifluoro-1-butene; 4,4,4-trifluoro-1-butene; 1,1,2,3-tetrafluoro-1-butene; 1,1,2,4-tetrafluoro-1-butene; 1,1,3,3-tetrafluoro-1-butene; 1,1,3,4-tetrafluoro-1-butene; 1,1,4,4-tetrafluoro-1-butene; 1,2,3,3-tetrafluoro-1-butene; 1,2,3,4-tetrafluoro-1-butene; 1,2,4,4-tetrafluoro-1-butene; 1,3,3,4-tetrafluoro-1-butene; 1,3,4,4-tetrafluoro-1-butene; 1,4,4,4-tetrafluoro-1-butene; 2,3,3,4-tetrafluoro-1-butene; 2,3,4,4-tetrafluoro-1-butene; 2,4,4,4-tetrafluoro-1-butene; 3,3,4,4-tetrafluoro-1-butene; 3,4,4,4-tetrafluoro-1-butene; 1,1,2,3,3-pentafluoro-1-butene; 1,1,2,3,4-pentafluoro-1-butene; 1,1,2,4,4-pentafluoro-1-butene; 1,1,3,3,4-pentafluoro-1-butene; 1,1,3,4,4-

pentafluoro-1-butene; 1,1,4,4,4-pentafluoro-1-butene; 1,2,3,3,4-pentafluoro-1-butene; 1,2,3,4,4-pentafluoro-1-butene; 1,2,4,4,4-pentafluoro-1-butene; 2,3,3,4,4-pentafluoro-1-butene; 2,3,4,4,4-pentafluoro-1-butene; 3,3,4,4,4-pentafluoro-1-butene; 1,1,2,3,3,4-hexafluoro-1-butene; 1,1,2,3,4,4-hexafluoro-1-butene; 1,1,2,4,4,4-hexafluoro-1-butene; 1,2,3,3,4,4-hexafluoro-1-butene; 1,2,3,4,4,4-hexafluoro-1-butene; 2,3,3,4,4,4-hexafluoro-1-butene; 1,1,2,3,3,4,4-heptafluoro-1-butene; 1,1,2,3,4,4,4-heptafluoro-1-butene; 1,1,3,3,4,4,4-heptafluoro-1-butene; 1,2,3,3,4,4,4-heptafluoro-1-butene; 1-fluoro-2-butene; 2-fluoro-2-butene; 1,1-difluoro-2-butene; 1,2-difluoro-2-butene; 1,3-difluoro-2-butene; 1,4-difluoro-2-butene; 2,3-difluro-2-butene; 1,1,1-trifluoro-2-butene; 1,1,2-trifluoro-2-butene; 1,1,3-trifluoro-2-butene; 1,1,4-trifluoro-2-butene; 1,2,3-trifluoro-2-butene; 1,2,4-trifluoro-2-butene; 1,1,1,2-tetrafluoro-2-butene; 1,1,1,3-tetrafluoro-2-butene; 1,1,1,4-tetrafluoro-2-butene; 1,1,2,3-tetrafluoro-2-butene; 1,1,2,4-tetrafluoro-2-butene; 1,2,3,4-tetrafluoro-2-butene; 1,1,1,2,3-pentafluoro-2-butene; 1,1,1,2,4-pentafluoro-2-butene; 1,1,1,3,4-pentafluoro-2-butene; 1,1,1,4,4-pentafluoro-2-butene; 1,1,2,3,4-pentafluoro-2-butene; 1,1,2,4,4-pentafluoro-2-butene; 1,1,1,2,3,4-hexafluoro-2-butene; 1,1,1,2,4,4-hexafluoro-2-butene; 1,1,1,3,4,4-hexafluoro-2-butene; 1,1,1,4,4,4-hexafluoro-2-butene; 1,1,2,3,4,4-hexafluoro-2-butene; 1,1,1,2,3,4,4-heptafluoro-2-butene; 1,1,1,2,4,4,4-heptafluoro-2-butene; and mixtures thereof.

7. (Previously presented) The process of claim 28, wherein the one or more hydrofluorocarbon(s) is independently selected from the group consisting of fluoromethane, difluoromethane, trifluoromethane, 1,1-difluoroethane, 1,1,1-trifluoroethane, 1,1,1,2-tetrafluoroethane, and mixtures thereof.

8. (Canceled)

9. (Original) The process of claim 1, wherein the diluent comprises from 20 to 100 volume % HFC based upon the total volume of the diluent.

10. (Original) The process of claim 1, wherein the diluent comprises from 25 to 100 volume % HFC based upon the total volume of the diluent.

11. (Previously presented) The process of claim 28, wherein the diluent further comprises a hydrocarbon, a non-reactive olefin, and/or an inert gas.

12. (Previously presented) The process of claim 28, wherein the diluent further comprises a halogenated hydrocarbon other than an HFC.

13. (Previously presented) The process of claim 28, wherein the diluent further comprises methyl chloride.

14. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula MX_4;
wherein M is a Group 4, 5, or 14 metal; and
each X is a halogen.

15. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula MR_nX_{4-n};
wherein M is Group 4, 5, or 14 metal;
each R is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 4; and
each X is a halogen.

16. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula $M(RO)_nR'_mX_{4-(m+n)}$;
wherein M is Group 4, 5, or 14 metal;
each RO is a monovalent C_1 to C_{30} hydrocarboxy radical independently selected from the group consisting of an alkoxy, aryloxy, arylalkoxy, alkylaryloxy radicals;

each R' is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 4;
m is an integer from 0 to 4, wherein the sum of *n* and *m* is not more than 4; and
each X is a halogen.

17. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula $M(RC{=}OO)_nR'_mX_{4-(m+n)}$;
wherein M is Group 4, 5, or 14 metal;
each RC=OO is a monovalent C_2 to C_{30} hydrocarbacyl radical independently selected from the group consisting of an alkacyloxy, arylacyloxy, arylalkylacyloxy, alkylarylacyloxy radicals;
each R' is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 4;
m is an integer from 0 to 4, wherein the sum of *n* and *m* is not more than 4; and
each X is a halogen.

18. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula MOX_3;
wherein M is a Group 5 metal; and
each X is a halogen.

19. (Canceled)

20. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula $M(RO)_nR'_mX_{3-(m+n)}$;
wherein M is a Group 13 metal;
each RO is a monovalent C_1 to C_{30} hydrocarboxy radical independently selected from the group consisting of an alkoxy, aryloxy, arylalkoxy, alkylaryloxy radicals;

each R' is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 3;
m is an integer from 0 to 3, wherein the sum of *n* and *m* is from 1 to 3; and
each X is a halogen.

21. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is represented by the formula $M(RC{=}OO)_nR'_mX_{3-(m+n)}$;
wherein M is a Group 13 metal;
each RC=OO is a monovalent C_2 to C_{30} hydrocarbacyl radical independently selected from the group independently selected from the group consisting of an alkacyloxy, arylacyloxy, arylalkylacyloxy, alkylarylacyloxy radicals;
each R' is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 3;
m is a integer from 0 to 3, wherein the sum of *n* and *m* is from 1 to 3; and
each X is a halogen.

22. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula MX_y;
wherein M is a Group 15 metal;
each X is a halogen; and
y is 3, 4 or 5.

23. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to

100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula MR_nX_{y-n};
wherein M is a Group 15 metal;
each R is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 4;
y is 3, 4 or 5, wherein n is less than y; and
each X is a halogen.

24. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula $M(RO)_nR'_mX_{y-(m+n)}$;
wherein M is a Group 15 metal,
each RO is a monovalent C_1 to C_{30} hydrocarboxy radical independently selected from the group consisting of an alkoxy, aryloxy, arylalkoxy, alkylaryloxy radicals;
each R' is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;
n is an integer from 0 to 4;
m is an integer from 0 to 4;
y is 3, 4 or 5, wherein the sum of *n* and *m* is less than y; and
each X is a halogen.

25. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the

polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula $M(RC{=}OO)_nR'_mX_{y-(m+n)}$;

wherein M is a Group 15 metal;

each RC=OO is a monovalent C_2 to C_{30} hydrocarbacyloxy radical independently selected from the group consisting of an alkacyloxy, arylacyloxy, arylalkylacyloxy, alkylarylacyloxy radicals;

each R' is a monovalent C_1 to C_{12} hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;

n is an integer from 0 to 4;

m is an integer from 0 to 4;

y is 3, 4 or 5, wherein the sum of *n* and *m* is less than y; and

each X is a halogen.

26. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is independently selected from the group consisting of titanium tetrachloride, titanium tetrabromide, vanadium tetrachloride, tin tetrachloride, zirconium tetrachloride, titanium bromide trichloride, titanium dibromide dichloride, vanadium bromide trichloride, tin chloride trifluoride, benzyltitanium trichloride, dibenzyltitanium dichloride, benzylzirconium trichloride, dibenzylzirconium dibromide, methyltitanium trichloride, dimethyltitanium difluoride, dimethyltin dichloride, phenylvanadium trichloride, methoxytitanium trichloride, n-butoxytitanium trichloride, di(isopropoxy)titanium dichloride, phenoxytitanium tribromide, phenylmethoxyzirconium trifluoride, methyl methoxytitanium dichloride, methyl methoxytin dichloride, benzyl isopropoxyvanadium dichloride, acetoxytitanium trichloride, benzoylzirconium tribromide, benzoyloxytitanium trifluoride, isopropoyloxytin trichloride, methyl acetoxytitanium dichloride, benzyl benzoyloxyvanadium chloride, vanadium oxytrichloride, ethylaluminum dichloride, methylaluminum dichloride, benzylaluminum dichloride, isobutylgallium dichloride, diethylaluminum chloride, dimethylaluminum chloride, ethylaluminum sesquichloride, methylaluminum sesquichloride, trimethylaluminum,

triethylaluminum, methoxyaluminum dichloride, ethoxyaluminum dichloride, 2,6-di-tert-butylphenoxyaluminum dichloride, methoxy methylaluminum chloride, 2,6-di-tert-butylphenoxy methylaluminum chloride, isopropoxygallium dichloride, phenoxy methylindium fluoride, acetoxyaluminum dichloride, benzoyloxyaluminum dibromide, benzoyloxygallium difluoride, methyl acetoxyaluminum chloride, isopropoyloxyindium trichloride, antimony hexachloride, antimony hexafluoride, arsenic pentafluoride, antimony chloride pentafluoride, arsenic trifluoride, bismuth trichloride arsenic fluoride tetrachloride, tetraphenylantimony chloride, triphenylantimony dichloride, tetrachloromethoxyantimony, dimethoxytrichloroantimony, dichloromethoxyarsine, chlorodimethoxyarsine, difluoromethoxyarsine, acetatotetrachloroantimony, (benzoato) tetrachloroantimony, and bismuth acetate chloride.

27. (Previously presented) The process of claim 28, wherein the one or more Lewis acid(s) is independently selected from the group consisting of ethylaluminum dichloride, ethylaluminum sesquichloride, diethylaluminum chloride, methylaluminum dichloride, methylaluminum sesquichloride, dimethylaluminum chloride, and titanium tetrachloride.

28. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) independently selected from the group consisting of a hydrogen halide, a carboxylic acid, a carboxylic acid halide, a sulfonic acid, an alcohol, a phenol, a polymeric halide, a tertiary alkyl halide, a tertiary aralkyl halide, a tertiary alkyl ester, a tertiary aralkyl ester, a tertiary alkyl ether, a tertiary aralkyl ether, an alkyl halide, an aryl halide, an alkylaryl halide and an arylalkylacid halide.

29. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) independently selected from the group consisting of HCl, H_2O, methanol, $(CH_3)_3CCl$, $C_6H_5C(CH_3)_2Cl$, (2-Chloro-2,4,4-trimethylpentane) and 2-chloro-2-methylpropane.

30. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) independently selected from the group consisting of hydrogen chloride, hydrogen bromide, hydrogen iodide, acetic acid, propanoic acid, butanoic acid; cinnamic acid, benzoic acid, 1-chloroacetic acid, dichloroacetic acid, trichloroacetic acid, trifluoroacetic acid, p-chlorobenzoic acid, p-fluorobenzoic acid, acetyl chloride, acetyl bromide, cinnamyl chloride, benzoyl chloride, benzoyl bromide, trichloroacetylchloride, trifluoroacetylchloride, p-fluorobenzoylchloride, methanesulfonic acid, trifluoromethanesulfonic acid, trichloromethanesulfonic acid, p-toluenesulfonic acid, methanesulfonyl chloride, methanesulfonyl bromide, trichloromethanesulfonyl chloride, trifluoromethanesulfonyl chloride, p-toluenesulfonyl chloride, methanol, ethanol, propanol, 2-propanol, 2-methylpropan-2-ol, cyclohexanol, benzyl alcohol, phenol, 2-methylphenol, 2,6-dimethylphenol, p-chlorophenol, p-fluorophenol, 2,3,4,5,6-pentafluorophenol, and 2-hydroxynaphthalene.

31. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) independently selected from the group consisting of 2-chloro-2,4,4-trimethylpentane; 2-bromo-2,4,4-trimethylpentane; 2-chloro-2-methylpropane; 2-bromo-2-methylpropane; 2-chloro-2,4,4,6,6-pentamethylheptane; 2-bromo-2,4,4,6,6-pentamethylheptane; 1-chloro-1-methylethylbenzene; 1-chloroadamantane; 1-chloroethylbenzene; 1, 4-bis(1-chloro-1-methylethyl) benzene; 5-tert-butyl-1,3-bis(1-chloro-1-methylethyl) benzene; 2-acetoxy-2,4,4-trimethylpentane; 2-benzoyloxy-2,4,4-trimethylpentane; 2-acetoxy-2-methylpropane; 2-benzoyloxy-2-methylpropane; 2-acetoxy-2,4,4,6,6-pentamethylheptane; 2-benzoyl-2,4,4,6,6-pentamethylheptane; 1-acetoxy-1-methylethylbenzene; 1-aceotxyadamantane; 1-benzoyloxyethylbenzene; 1,4-bis(1-acetoxy-1-methylethyl) benzene; 5-tert-butyl-1,3-bis(1-acetoxy-1-methylethyl) benzene; 2-methoxy-2,4,4-trimethylpentane; 2-isopropoxy-2,4,4-trimethylpentane; 2-methoxy-2-methylpropane; 2-benzyloxy-2-methylpropane; 2-methoxy-2,4,4,6,6-pentamethylheptane; 2-isopropoxy-2,4,4,6,6-pentamethylheptane; 1-methoxy-1-methylethylbenzene; 1-methoxyadamantane; 1-methoxyethylbenzene; 1,4-bis(1-methoxy-1-methylethyl) benzene; 5-tert-butyl-1,3-bis(1-methoxy-1-methylethyl) benzene, and 1,3,5-tris(1-chloro-1-methylethyl) benzene.

32. (Previously presented) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises a weakly-coordinating anion.

33. (Previously presented) The process of claim 28, wherein the process is substantially absent of water.

34. (Previously presented) The process of claim 28, wherein the one or more initiator(s) comprise greater than 30 ppm water (based upon weight).

35. (Previously presented) The process of claim 28, wherein the one or more monomer(s) is independently selected from the group consisting of olefins, alpha-olefins, disubstituted olefins, isoolefins, conjugated dienes, non-conjugated dienes, styrenics, substituted styrenics, and vinyl ethers.

36. (Previously presented) The process of claim 28, wherein the one or more monomer(s) is independently selected from the group consisting of styrene, para-alkylstyrene, para-methylstyrene, alpha-methyl styrene, divinylbenzene, diisopropenylbenzene, isobutylene, 2-methyl-1-butene, 3-methyl-1-butene, 2-methyl-2-pentene, isoprene, butadiene, 2,3-dimethyl-1,3-butadiene, ß-pinene, myrcene, 6,6-dimethyl-fulvene, hexadiene, cyclopentadiene, methyl cyclopentadiene, piperylene, methyl vinyl ether, ethyl vinyl ether, and isobutyl vinyl ether.

37. (Previously presented) The process of claim 28, wherein the reactor is independently selected from the group consisting of a continuous flow stirred tank reactor, a plug flow reactor, a moving belt or drum reactor, a jet or nozzle reactor, a tubular reactor, a batch reactor, and an autorefrigerated boiling-pool reactor.

38. (Previously presented) The process of claim 28 wherein the diluent has a dielectric constant greater than 10 at -85°C.

39. (Original) The process of claim 38, wherein the dielectric constant is greater than 20 at -85°C.

40. (Original) The process of claim 39, wherein the dielectric constant is greater than 25 at -85°C.

41. (Original) The process of claim 40, wherein the dielectric constant is greater than 40 at -85°C.

42. (Previously presented) The process of claim 28, wherein the process forms a polymer having a diluent mass uptake of less than 4 wt%.

43. (Original) The process of claim 42, wherein the polymer has a diluent mass uptake of less than 3 wt%.

44. (Original) The process of claim 43, wherein the polymer has a diluent mass uptake of less than 2 wt%.

45. (Original) The process of claim 44, wherein the polymer has a diluent mass uptake of less than 1 wt%.

46. (Original) The process of claim 45, wherein the polymer has a diluent mass uptake of less than 0.5 wt%.

47. (Previously presented) The polymerization process of claim 28, the diluent comprising methyl chloride and one or more hydrofluorocarbon(s) independently selected from the group consisting of difluoromethane, 1,1-difluoroethane, and 1,1,1,2-tetrafluoroethane in a reactor.

48. (Original) The process of claim 47, wherein the diluent further comprises a non-reactive olefin, and/or an inert gas.

49. (Previously presented) The polymerization process of claim 28, the process comprising the steps of:

reacting the one or more monomer(s) in the presence of one or more Lewis acid(s), one or more initiator(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's); and

withdrawing the polymer from the reactor.

50. (Previously presented) The polymerization process of claim 28, the process comprising the steps of:

(a) introducing one or more monomer(s) into a reactor;

(b) adding one or more Lewis acid(s) and one or more initiator(s);

(c) introducing a diluent comprising one or more hydrofluorocarbon(s) (HFC's); and

(d) withdrawing a polymer from the reactor.

51. (Previously presented) The polymerization process of claim 28 in which particles of polymer are produced in a slurry using a catalyst system and a diluent comprising one or more hydrofluorocarbon(s) (HFC's).

52. (Canceled)

53. (Previously presented) A polymerization medium suitable to polymerize one or more monomer(s) to form a polymer, the polymerization medium comprising one or more Lewis acid(s), one or more initiator(s) and a diluent comprising one or more hydrofluorocarbon(s) (HFC); wherein the one or more Lewis acid(s) is not a compound represented by formula MX_3, where M is a group 13 metal and X is a halogen, wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa, and wherein the one or more initiator(s) is independently selected from the group consisting of a hydrogen halide, a carboxylic acid, a carboxylic acid halide, a sulfonic acid, an alcohol, a phenol, a polymeric halide, a tertiary alkyl halide, a tertiary aralkyl halide, a tertiary alkyl ester, a tertiary aralkyl

ester, a tertiary alkyl ether, a tertiary aralkyl ether, an alkyl halide, an aryl halide, an alkylaryl halide and an arylalkylacid halide.

Claims 54-58 (Canceled)

59. (Previously presented) A process to polymerize one or more monomer(s) to form a polymer, comprising contacting one or more monomer(s) in a polymerization medium comprising one or more Lewis acid(s), a weakly coordinating anion, and a diluent comprising one or more hydrofluorocarbon(s) (HFC); wherein the one or more Lewis acid(s) is not a compound represented by formula MX_3, where M is a group 13 metal and X is a halogen, wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa.